



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/802,453 | 03/09/2001 | Xiaodong Li | 05158.P006 | 8422 |

7590 07/01/2004

Michael J. Mallie
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP
Seventh Floor
12400 Wilshire Boulevard
Los Angeles, CA 90025-1026

EXAMINER

TRAN, THIEN D

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2665

DATE MAILED: 07/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/802,453

Applicant(s)

LI ET AL.

Examiner

Thien D Tran

Art Unit

2665

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-54 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-54 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>7-9</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichihara (U.S Patent No. 5,640,413 B1) in the view of Bao (U.S Patent No. 6,449,630).

Regarding claims 1, 3, 5, 25, 27, Ichihara discloses a method for communicating with at least one subscriber, the method comprising: transmitting TDMA modulation signals to the at least one subscriber; and receiving CDMA demodulation signals from the at least one subscriber. However, Ichihara does not disclose that the modulation and demodulation from transmitting and receiving are OFDM and DSSS. Bao discloses that OFDM and DS-CDMA being used in the communication system between base station mobile stations in modulator and demodulator, col.4 lines 1-15. Therefore, it would have been obvious to one having ordinary skill in the art to combine dual mode transceiver using OFDM and DSSS so that the communication system can be more compatible due to the fact that OFDM utilizes optimal power at the base station and DSSS utilizes multipath channels efficiently.

Regarding claims 2, 4, 10, 14, 15, 26, 32, 34, 38, 39, Bao discloses receiving the DSSS signals comprises receiving multiple code division multiple access (CDMA)

signals from a plurality of subscribers, col.1 lines 45-50. Therefore, it would have been obvious to have DSSS in CDMA system so that codes can be spreaded properly among users.

Regarding claims 6, 7, 16, 33, 35-37, 46, Ichihara does not[✓] disclose a switch to couple to the DSSS transmitter and the OFDM receiver to the first antenna; and a second switch to couple to the DSSS receiver and the OFDM transmitter to the second antenna. However, it would have been obvious to one having ordinary skill in the art to have the switch for switching between modulation and demodulation so that data can be transmitted and received properly.

Regarding claims 8, 9, 13, bao discloses the system wherein the OFDM transmitter comprises:

a plurality of processing paths, wherein each of the processing paths has a forward error correction (FEC) encoder, an interleaver coupled to an output of the FEC encoder, and a modulator coupled to an output of the interleaver, figure 3; and

an inverse Fast Fourier Transform (IFFT) coupled to receive outputs from modulators in the plurality of processing paths and to output OFDM signals, figure 3.

Therefore, it would have been obvious to one having ordinary skill in the art to have the described element above incorporated to the transmitter of OFDM so that the data can be processed accordingly to the stricture of OFDM. Receiver doing reversed process is inherent from the system transmitter.

Regarding claim 11, it would have been obvious that the DSSS transmitter comprises: a forward error correction (FEC) encoder coupled to receive user data; an

interleaver coupled to an output of the FEC encoder; a modulator coupled to an output of the interleaver; and a spreader coupled to an output of the modulator so that the receiver can correct data properly.

Regarding claims 12, 43-45, it would have been obvious that the DSSS receiver comprises: a plurality of processing paths, each of the processing paths having a correlator, a channel estimator coupled to an output of the correlator, the channel estimator having first and second outputs, a Rake receiver coupled to an output of the correlator and a first output of the channel estimator, a de-interleaves coupled to an output of the Rake receiver, a FEC decoder coupled to an output of the de-interleaves, a FFT unit coupled to a second output of channel estimator so that the receiver can despread data properly.

Regarding claims 17-22, 47-52, Bao discloses the signal comprises at least one spread-spectrum pseudo-noise (PN) sequence, figure 4.

Regarding claims 23, 53, Bao discloses the CDMA transmitter is for uplink communications, figure 4.

Regarding claim 24, 28-31, 54, Bao discloses the OFDM transmitter transmits full bandwidth pilot OFDM symbols during downlink for open loop power control, figure 4.


Regarding claims 40-42, it would have been obvious for the OFDM subcarrier allocator to adaptively allocate subcarriers according to the signal-to-noise (SNR) ratio level (information) so that the amount of data in each subcarrier can be demodulated correctly at the receiver without having a lot of noise in it.

Conclusion

3. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Thien Tran whose telephone number is (703) 308-4388. The examiner can normally be reached on Monday-Friday from 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu, can be reached on (703) 308-6602. Any inquiry of a general nature of relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3900.

Thien Tran



STEVEN NGUYEN
PRIMARY EXAMINER